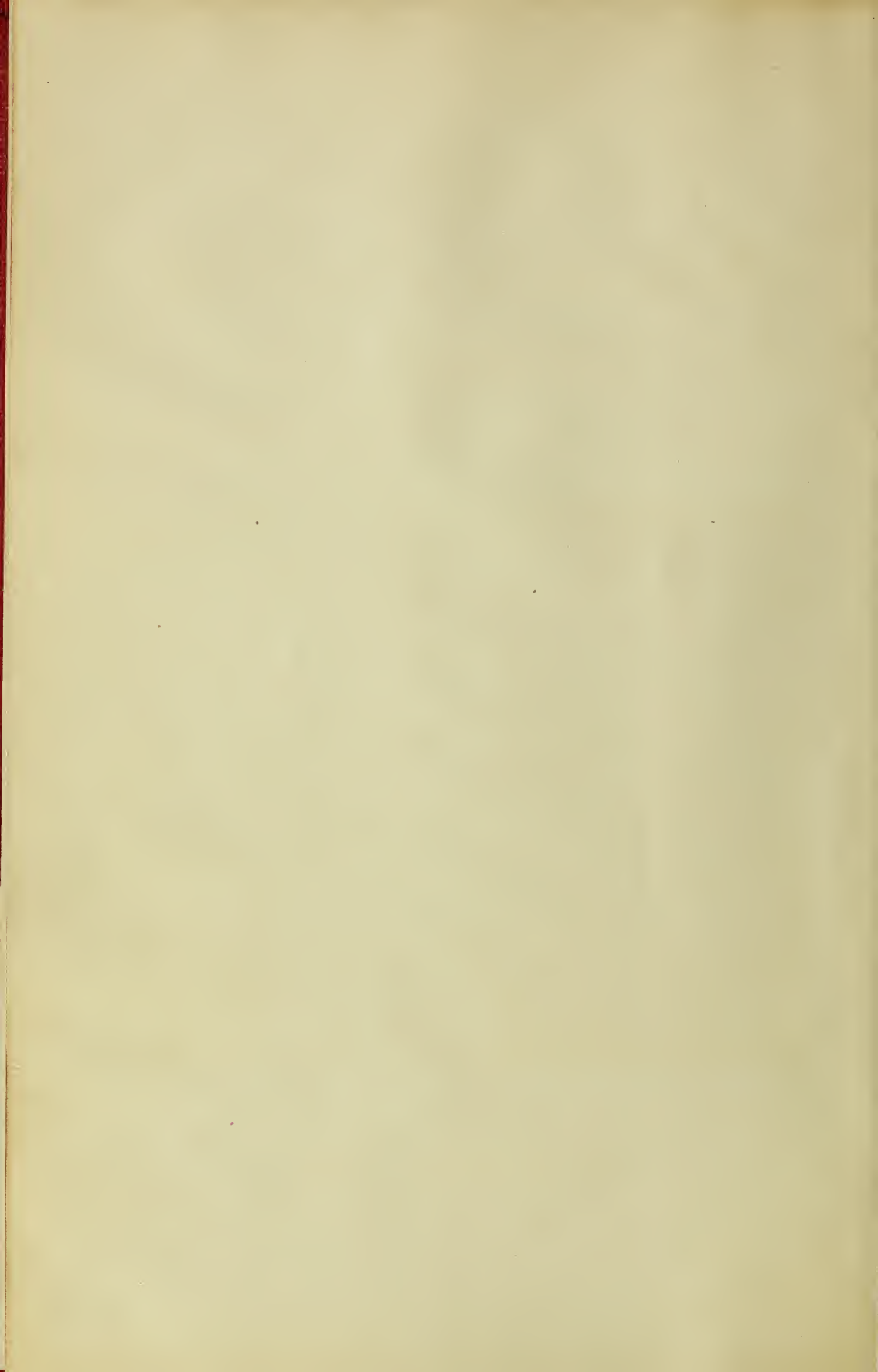


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VOLUME XVI.

THE AGRICULTURAL STUDENT

A MONTHLY MAGAZINE DEVOTED TO AGRICULTURAL EDUCATION



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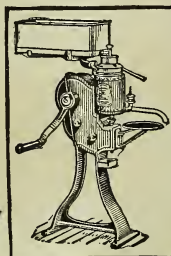
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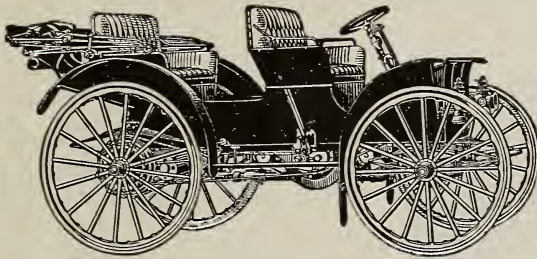
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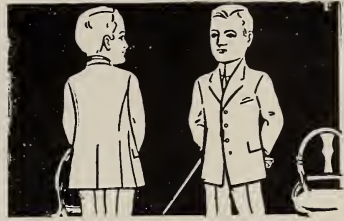
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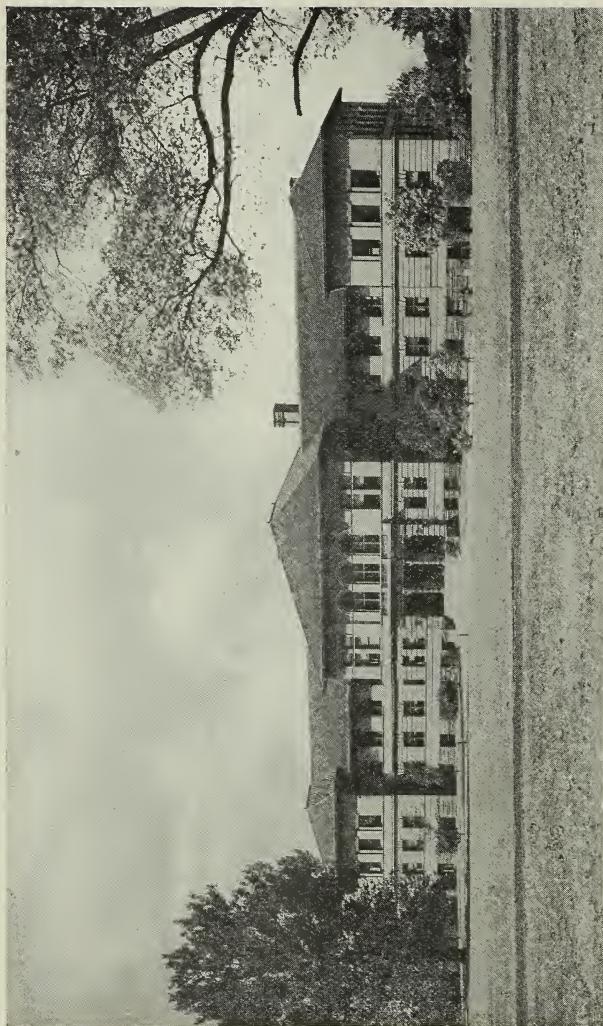


OCTOBER, 1909.

COVER—A Campus Nook Along the Olentangy.

FRONTISPIECE.

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TOWNSEND HALL.

THE AGRICULTURAL STUDENT

Vol. XVI. OHIO STATE UNIVERSITY, COLUMBUS, OCTOBER, 1909 Number 1

Educating the Modern Agriculturist

By F. S. B.

It has only been in late years that it was thought necessary for the farmer to have any more education than to sign a cramped, straggling signature to the mortgage which the local savings and loan association put upon his farm. Owing to recent changes in the method and procedure of farming operations, it is now necessary that the modern agriculturist shall spend two or four years in some good agricultural college. Here is where this article seeks to offer some suggestions for the education of the farmer boy.

The average farmer boy comes to the agricultural college directly from the farm. Although I do not wish to say anything disparaging to country life, I do say that the farmer boy has not had either the intellectual or social advantages of his city-bred brother. It may be said that the country schools afford the same educational advantages as the city schools, but the fact of the matter is they do not. The teachers are underpaid and ill trained; true, they manage to pass the "teacher's examination." They can spell Constantinople and incompatibility, but how many of them use "lie and lay," "saw and seen," "teach and learn," and a score of other common words and phrases correctly in their every-day speech. It may seem that grammar is an unnecessary accomplishment for the farmer. The farmer is no longer the solitary being who labored

in the fields from dawn until dusk, with his wife and family working at his side. He has become a gregarious animal, and seeks and is accepted into the best society. In order to make a good appearance for himself he must be cultured and refined. These are some grounds for the jokes—old as agriculture itself—which fill our Sunday supplements, and it seems to me that it is up to us, as up-to-date farmers, to eradicate the causes of this "wit" of some cub reporter at eight per.

The boy enters college and immediately sets up a wail of protest because he has to take a foreign language, English, chemistry, economics and a few other studies which he says, "Hain't doin' me no good, no how." Those are exactly what he needs, only more of them. Literature, history, sociology, science and mathematics should all be included in his curriculum. A man must be broad or he is not an educated man, no matter how many university degrees he may have. A man who knows nothing but agriculture or engineering or law will not make a success of life until he does learn something else. We come to college to get an education and we should get as broad a one as possible.

There are two distinct phases to a college education. One phase has to do with what we learn from books and lectures, the other phase has to do with what we learn from experience and may

be termed the social phase of college life. I do not think that I exaggerate, to any extent, the importance of the latter by placing as much emphasis upon it as on the former.

Take a broad course of study, learn to dance, cultivate the acquaintance of men and women, attend the theatre, go to churches, lectures and concerts, and endeavor in every way to obtain not only an intellectual polish but also a social one. It will pay and pay well; if not financially, it will save you much embarrassment. The man who returns to the farm with a college education behind him will find himself a factor in the community, just as much so as the bankers, merchants and manufacturers of his neighboring city, and he must be able to hold up his end of the

string whether it be at a reception or at a political meeting.

The young man who goes out from the agricultural college to take a position as a professor or lecturer, or goes into government or experiment station work must cultivate the social side in order to make a success, as there he will have to associate with a class of men who are educated in the broadest sense and he will have to qualify himself—at the head of the list.

So, fellow farmers, let us all work together and get into the social life of the University and not have any cheap jokes cracked at our expense by some high-browed law or engineering student. Let us all do this and the public will soon place our profession where it belongs—at the head of the list.

Fruit as a Food

Ever since Eve persuaded Adam to taste the "Forbidden Fruit" in the Garden of Eden, fruit has been an article of diet. During the 5000 years which have elapsed since that episode the varieties of fruits now consumed as food have so increased in number that they are almost innumerable. It is highly probable that sweet fruits composed a large part of the diet of our primitive ancestors, as we find them doing today for savages living outside of the Arctic zone.

As to the composition of fruits it may be said in a general way that they contain water, starches, sugars, a vegetable jelly called pectin, cellulose and organic acids.

Pectin is a carbohydrate found in ripe, pulpy fruits which enables them to gelatinize when boiled. Its properties and composition are not thoroughly understood.

Among the most important organic acids existing in fruits are citric, malic and tartaric, and these are found in varying quantities and combinations.

We also find a few fruits containing a small per cent. of nitrogenous material, but the starches and sugars usually predominate and thus determine the nutritive value as an article of food.

Fruits which are especially rich in flavor and which give off a pleasant odor owe these properties to the various oils and ethers which they contain.

The value of a fruit as a food does not depend solely upon its ability to furnish nutriment but also upon various other properties, the most important of which are as follows:

To convey water to the system and relieve thirst.

To introduce various salts and organic acids which improve the quality of the blood and act favorably upon the secretions.

To act as laxatives and cathartics.

To stimulate the appetite, improve digestion and give variety to the diet.

Some of the fruits which afford the most nutriment are the banana, date, fig, prune and grape, their value being chiefly due to the large proportion of sugar which they contain.

Other fruits, such as melons, oranges, lemons and apples are composed principally of water and are thus only slightly nutritious, but are of value because of the salts and acids which they contain.

There has been more or less discussion in recent years concerning the proper time for eating fruits. According to Dr. W. G. Thompson, "Cooked fruits may be eaten with any meal, but usually when fruit is eaten for special dietetic purposes its effect is always more pronounced if taken alone, either at the beginning of the meal, or, better, between them. The poorest time for eating fruit is at the conclusion of a very hearty dinner at which considerable variety of food has already been consumed."

Among the common fruits which may be easily digested are grapes, oranges, lemons, cooked apples, figs, peaches, strawberries and raspberries. However, the digestibility depends very much upon the ripeness of the fruit as well as upon personal taste.

Let us now consider, individually, some of the fruits found on our home market and used for local consumption.

We will first discuss the apples, which when properly selected are very wholesome and digestible. They contain large amounts of potassium and sodium salts which are very beneficial to the body and have a tendency to

compensate the lack in nutritive value. Pears are similar to apples in their effect, but only to a limited degree. If fully ripe and soft they are even more easily digested raw, than apples. They possess no special food value and are mainly used for their choice odor, flavor and appearance.

Peaches contain very little nutriment, but like pears are used because of their flavor and appearance, which makes them tempting articles for the table.

The banana has of late years assumed a very important position among fruits sold in this country. Improvements in cultivation, means of transportation and the length of time during which the fruit will keep without spoiling account for this condition. The banana is very nutritious and grown on a given area will support more people than wheat.

In the West Indies and in Central Africa, many of the natives use the banana as the chief article of diet. The fact that it will sustain life for a relatively long period is due to the high percentage of protein which it contains.

Grapes are universally grown and their flavor and aroma, together with their general wholesomeness, make them an important article of diet.

Melons possess little nutritive value, but they are agreeable to the palate and consequently are in general use. They contain about 95 per cent. of water and thus are not satisfying to the appetite.

We hope, from this limited discussion, that fruits will not be regarded as luxuries but as necessities which are essential to good health and that money used judiciously in buying fruits will do away with many a doctor's bill.

Filling the Silo

By James E. Walker, '12

Stop for a moment and consider the importance of ensilage. Think what such a food means to stock farming, particularly dairy farming. Think, too, of the economy of handling a corn crop by this method, and the fertility that will be returned to the soil by its practice. Such consideration can not but lead you to the conclusion that this manner of handling corn has a direct bearing upon the prosperity of the farm. The operation of cutting ensilage, therefore, lumes up with particular interest and importance, and it is a discussion of this operation with regard to its methods and cost that we wish to take up.

Let us speak first of the corn itself. The variety used matters little so long as it is of luxuriant growth. White varieties usually have this quality especially developed, but yellow corn is not infrequently used. The plants should stand thickly on the ground, giving an abundance of fodder rather than an excess of corn. In this way a yield of from fifteen to twenty tons per acre will be received. The crop should be harvested just after the corn is past the milk. Although the date varies with the season, it will in a majority of cases be from the fifteenth to the twentieth of September.

The machine for doing the cutting is preferably a large sized blower, which is run either by a gasoline or a steam engine. Such an outfit is not owned by the average farmer, but it may be hired for a reasonable sum. The hire varies according to local conditions, the capacity of the machine, and the number of men by whom it is accompanied. A common price for a good sized cutter, with an engineer and a man to feed, is

fifteen dollars per day; fuel to be furnished by the farmer.

Such an outfit requires a large force of men and teams to deliver corn at the machine as fast as it can be cut. The number of men might be enumerated as follows:

Cutting	3
Loading	3
Hauling	4
Unloading	1
In silo	2
Total	13

The number of teams varies according to the hauling distance, but on the average farm four can do the work very comfortably. If a corn binder is used one man and a fifth team take the place of the three men that do the cutting.

The next thing is to figure the cost per ton for doing the work. This can readily be done in any individual case, but conditions are so varied that an established figure for all cases is an impossibility. If the farmer owns a machine and engine and can do a large part of the hauling with his own teams, the cost will obviously be reduced. The following figures, therefore, would not apply in all cases, but they will serve to give an idea on the subject. The table has been made up according to observations taken on several different farms:

Outfit (engineer and feeder accompanying)	\$15 00
Nine men at \$1.50.....	13 50
Four teams at \$4.50.....	18 00
Board (15 men, two meals at 25c each)	7 50

Total for one day.....\$54 00
Average amount cut per day, 55 tons.

Cost of cutting, per ton, 98 cents.

The cost of cutting ensilage will be greatly increased if the operation is not carried on in an efficient manner. In other words, it must be well managed or "loop-holes" for loss of time and money will result. In the first place a full force of men is a necessity. Cutting ensilage is hard work, and it is very poor policy either to over-work the men, or to prevent a machine from running

to its full capacity in order to economize in the number of the working force. Still more foolish it is to have more men than are actually required to do the labor. Everything should work in harmony, and corn should come to the machine just as fast as it can be taken, without waiting or loafing on the part of any. In this way a crop will be handled with the utmost economy, and the cost of ensilage reduced to a minimum.



When the frost is on the pumpkin
And the fodder in the shock.

— Riley.

Changes in Methods of Locomotion and Their Effects on Horse Values

In the days of the stage coach it required six days to journey from Boston to New York, and two days from New York to Philadelphia. Today we travel from Boston to Philadelphia in eight hours, a distance which Washington could not have traversed in less than eight days. Mechanical invention has restricted the utility of the horse. The advent of the steam boat in 1790, the opening of the Erie canal in 1852, the coming into practical use of the locomotive in 1834, the electric car and the bicycle in 1890, and the automobile a little later, all these had a decided effect on the horse.

As each new invention came into use there were numerous predictions that the horseless age was near at hand. Even today we hear the extinction of the horse predicted, due to the rapidly increasing use of the automobile. The following appeared in the "Cultivator" in 1841: "In this age of canals and railroads the utility of the horse is materially diminished." It is easily believed that this was true, for every successful mechanical invention in the field of transportation has been adopted and put into wide use in a wonderfully short space of time. Prior to 1812, for example, great Conestoga wagons drawn by four and six horses were used to bring freight to Pittsburg from the East, and it required more than 12,000 wagons in a year, bringing goods on which the freight was \$1,500,000. With the appearance of the steamboat on the Mississippi and Ohio this great freighting business was threatened, and when the railroads came in a few years later the Conestoga horse and wagon was forced out of business. The change was quick and the effects were therefore serious

to the teamsters and horsemen engaged in the freighting business. Although the advent of each invention has forced hardship upon the horse industry for the time being, nevertheless horses have continued to increase in number and past history does not point toward a horseless age.

When street cars began to be generally used, horses were increasing at the most rapid rate ever known. The West was expanding and cities and towns everywhere were growing rapidly, while trade and prices were, in general, good. The introduction of horse cars added to the demand for horses in cities, while the short life of animals so used, due to rough pavements and ill usage, kept the markets from becoming over-supplied. There was more breeding carried on then than at any other time, and between 1884 and 1895 the supply began to overtake the demand. Prices were slowly forced down, but the average, as reported by the Department of Agriculture, declined only about \$5.00 in the six years ending with 1890. During this time, the cable and electric systems of street railways were perfected, the first electric car line in the United States having been put in operation in Cleveland on July 27, 1884. The electric plants were installed with wonderful rapidity and by 1895 had practically displaced the horse on street railways. Large numbers of ex-street car horses were sold for whatever they would bring, and, as a result, the market for cheaper grades of horses was, in a short time, ruined.

In the meantime bicycles became popular, and horse breeders were frightened by constant predictions that the wheel would in many ways supplant the

horse. Then came the panic of 1893 and in two years prices dropped over 40 per cent. and there was little trading even at the lowest prices. Breeding almost ceased. It was commonly predicted that horses would not be in general use much longer, and that breeding could never be made to pay in the future. The great number of cyclists, many of whom had never owned a horse, were represented to the imagination of the horse breeder as having given up horses for the wheel, while the automobile, then an unknown quantity, was announced as about to complete the slaughter.

About 1896 a counteracting factor began to make itself influential in the American markets. This new factor was the demand for American horses for export. Exportation was first stimulated by the exceedingly low price of horses in the United States and later by the demand in South Africa and elsewhere abroad. The export trade became very large and selling values were powerfully affected.

The extension of trolley roads into the country, and the growth of population along them in some instances caused more horses to be kept, as some families who moved to the country spend, in the keeping of horses, money formerly used in paying rent. Increased production of all crops made the use of more horses necessary and helped the market to regain its strength.

While changes in the methods of long-distance transportation have tended to displace the horse to a great extent, they have on the other hand, for almost a century, tended to increase the use of horses for other purposes. The construction of the Erie canal was at the time opposed by some of the farmers along the prospective route, because the extensive business of hauling

goods by team added a constant demand for horses, and they thought the canal would kill the business. But the canal eventually so stimulated general transportation that the increase in number of dray horses required in the cities and towns greatly exceeded the number displaced along the route of the canal. A similar result followed the introduction of railroads. This is proved when we find that in 1850 there were 2.03 draymen, teamsters, hostlers, and livery men per 1000 of population, while in 1870 there were 3.8, and in 1900, 7.9 per 1000.

The effect of the automobile on the horse industry cannot be known with certainty at the present time. Unlike the bicycle, the automobile is available only to the man with money. Hence the automobile more often displaces the horse when it goes into use than did the bicycle in its day. The taxicab and auto-truck have come to stay, although there is an element of fad at the present time, which will be eliminated as time goes on. Many will return to the horse in following years as the automobile becomes common, and ceases to be a fad and a luxury. As a business adjunct, however, the automobile will permanently displace some horses, although the alteration is proceeding slowly enough to prevent an undermining of horse values. With the automobile business at the greatest height yet reached, horse values are the highest in history and confidence in the future is a market feature of all present day breeding.

About four years ago many of the large brewery companies of New York City substituted automobiles for horses on their heavy delivery wagons, and it looked as though the electric machine would be equally efficient and generally adopted for this class of work. How-

ever it was found that the electric power was much more expensive than the horses, as well as somewhat uncertain, so the horses were returned to service. The same experience has been had by many of the large department stores in that city.

The following from the Breeder's Gazette for May 5, 1909, furnishes a fitting

conclusion to this discussion and closes with an optimistic impression: "When a Shire stallion brings \$18,500 at auction, as did Tatton Dray King, it would seem that the fear of autotrucks is not before the eyes of the British breeders. . . . The price for this champion Shire stallion is a record for draft horses."

Tobacco Growing in Southwestern Ohio

By V. E. Brubaker

Among the staple crops grown in Southwestern Ohio is tobacco.

This crop is grown chiefly by renters and non-possessors of land.

Not many years ago, farmers only attempted but a very small crop annually along with their other responsibilities.

But in the last ten years different modes of machinery have been invented, lessening the labor very much and giving a man much greater advantage to increase the acreage. Although at the best farmers find lots of hard labor connected with it.

It is, as a rule, a pretty sure crop, very seldom being a failure. For this one reason, the renter nearly always wants to raise as much as he can possibly handle. With a reasonable amount of hired help one man can tend from 8 to 10 acres.

From Dayton to Germantown, and from there down to Cincinnati, I venture to say, three-fifths of the farms produce from 3 to 15 acres annually, sometimes reaching as high as 30 acres.

The chief varieties raised are Spanish, Seed-leaf and Flat-Dutch, but there are some others which are not so extensively handled.

Each farmer who raises tobacco must begin to care for his crop as early as the condition of the soil will permit. He first prepares some good rich soil, al-

ways allowing plenty of room, to be sure to have plenty of plants to plant the desired acreage. Around this soil boards are fixed firmly, on which are tacked canvas to cover the soil while the plants are sprouting and are very tender.

From this time on, the plants need very careful attention. Weeding and watering are among the chief care while the plants are yet in the bed. They also must be kept thinned out to a certain degree or they will decay before time for transplantation.

The farmer, as a rule, breaks his ground at the same time as he does his corn-ground, after which he drags it and leaves it lay until a short time before the plants are ready for the field. He then harrows and works the soil again, until it is well pulverized and in condition for quick start in growth for a young, tender plant.

It is a very necessary thing that this crop be treated with great care at beginning of field growth, because it is a plant that makes itself in a short-season's growth. For this reason the grower always cultivates the crop as many times as he possibly can, before the roots spread too far to cause injury.

When the stock possesses two new leaves, it meets with a difficulty, which

the grower has to fight until he has harvested his crop. This difficulty is insect pests. This pest is commonly known as the tobacco worm or *Phlegenthontius Carolina*.

In the larva form it eats very rapidly and destroys an immense amount of the best tobacco. The best remedies the farmer finds are rotation of crops and applying some poisonous insecticide. They generally use a commercial stomach poison in the powder form. It is applied after a shower or in the morning after a heavy dew.

Another undesirable feature about tobacco raising is keeping the suckers broken off, in order that the nourishment may all be left to enlarge the leaves. The crop should be suckered at least twice, and three times if possible. As far as diseases are concerned, tobacco is, as a rule, in seasonable years, free from trouble of that kind. Although in wet seasons, if, at the right age, the crop is encountered by a heavy shower, the leaves are more or less

bruised and later on, when they become nearly matured, rusted spots form, which reduces the value of the crop to trash or lower priced tobacco. Also in some certain soils the leaves turn yellow and lose their weight. This disease is called frenching and is also increased in wet seasons.

Again it sometimes causes trouble after being hung in the shed. If there is not much wind and tobacco is hung too close, it becomes hot and decays, causing it to drop off the stock, rendering it perfectly worthless. This is commonly called shed-rot or shed-burnt. The only remedy is to place it so that the air can reach it better.

Sometime about the 15th of August the first crops are cut and taken to the shed. When it is ready to cut, the leaves show yellowish-purple spots on top. It should be handled with great care and not be bruised any more than possible.

After it is in the shed a few days it begins to cure and is allowed to



TOBACCO SHED.

hang there until cold weather. Then as soon as it comes in case on some rainy day, it is taken down from the railing and removed from the sticks. After it is piled in bunches and covered up in some manner to hold the case, the leaves are stripped from the stock, and sorted into two classes, fillers and wrappers, and then packed in boxes of different sizes, ready for the market.

The bare stocks are put back on the ground for fertilizers.

The prices paid for tobacco in this part of Ohio for the last ten years have ranged from 7 to 14 cents per pound, if delivered.

The average amount raised to the acre is from 750 to 800 pounds, and some seasons as high as 1500 pounds.

The shed in which the tobacco is hung is arranged for good ventilation,

having plenty of small doors, which can be opened when you are expecting good weather to case the tobacco. The above picture shows a modern tobacco shed which holds 13 acres.

It is arranged with six large sliding doors, making it as convenient as possible to drive through.

Another good feature about this shed is the solid concrete wall or foundation, which bars the water and small animals which might enter from underneath.

Although there is a good deal of profit in raising tobacco, there also is more labor connected with it than any other crop in that section of the state. For this reason many people dislike to raise it, but owing to its goodly yield annually they depend on it as a sure crop.

Durability in Horses

By S. R. Guard

In undertaking to deal with a subject which presents so many phases of development and also one which is so very important, it would be well to first ascertain the meaning of durability. It means, primarily, the power of continuing uninterruptedly in any condition; the power of resisting agents or influences which tend to cause change. So we see that a horse possessing durability would possess that characteristic of being able to remain in the condition in which he is most useful. The term as applied to light horses would mean the gait or style of action which renders it useful to its owner; while in heavy horses it means the ability to exert itself in drawing heavy loads for such a length of time and in such a manner as to make it the most profitable. In analyzing those attributes which go to constitute durability we find that they

may be grouped as quality, action, conformation, condition, and disposition. There are often no clear cut boundaries between these characteristics and they may overlap somewhat, but they all have a part in the make-ups of the horse presenting the greatest durability in any line. To give a sort of brief analysis of each of these is our aim.

Quality, as applied to horses, has reference to a refined head with clean cut features, firm, clean (but not necessarily small) bone; smooth, close fitting, glove-like skin; fine, silky hair; with a finish of exterior and an absence of coarseness throughout. The tendons should stand well out from the bones and the outlines of the muscles should be well defined. It doesn't take much reason to know that a coarse skin and spongy bone are more liable to weakness and disease than a skin showing

quality and a bone dense and refined. It is a well known fact that in any animal, a fine, smooth outside coat tells us of a soft, fine, pliable lining of the internal organs. This means that the secretions are good and hence the digestion is good, or, in other words, our horse is healthy and in the "pink" of condition at all times. Quality in the feet and limbs is especially valuable, because limbs having desirable quality are not liable to break down or become unsound from the strain imposed upon them. Quality is one of our best guides to the extent of our animal's durability, the two are always closely associated, and therefore a horse without quality must be a cheap animal.

While action is not of equal importance in all classes of horses, every horse should have good action. It is of prime importance in light horses, and those possessing the best action will, other things being equal, have the most durability. Good action should consist in moving in the best way to accomplish a purpose. Hence every horse should be a "straight line mover," because to be otherwise means a loss of energy to no purpose, and with a consequent drain on the durability. Good action (not considering that extreme action demanded by the followers of the fad) is desirable for its utility, and the best action means that we are getting the best result from a given amount of energy. In the same way poor action means a serious drain on the animal's durability.

To be able to do the greatest amount of work for the longest period of time with the least amount of wear, a horse must show that conformation which indicates durability and endurance. Of course, these indications will be somewhat different, in exact detail, for the different types of horses, but in a general way we may say they are good feet,

good bone, good constitution, good feeding qualities and general symmetry of form. All these bear directly on a horse's durability. It is absolutely necessary that a horse have good feet in order to do his work at all. Especially is this true in the city work. We may truly say that a horse has no more durability than his foot has. The pastern should be set at the proper angle to act as a buffer, so that there may not be an undue amount of concussion which would produce soreness and disease. Since most of the weight is carried on the front legs, the pasterns should slope more here than in the hind legs. The hoof should be dense, waxy and large and show no evidence of cracks. All the parts of the foreleg are arranged to produce elasticity, hence the shoulder is sloping and oblique, and the arm rather long, with a comparatively short cannon to provide for the easy transmission of power. The properly shaped and best formed hocks, gaskin, rump, etc., provide for the easiest transmission of power in the hind quarters and hence the most durability. It is needless to say that any unsoundness in the feet or anywhere else, must needs affect the normal and best workings of those parts, and hence the durability of the whole mechanism. The bone should correspond to the weight of the horse and so be strong enough to do all that is called for in acting as the levers, which they are, though of course bone too large would simply cause a further waste of energy in carrying it. Health and endurance, both vitally necessary to durability, are denoted by the possession of a good constitution. The indications of this lie in a deep, roomy chest which shows sufficient room for the vital organs. The nostrils must also be large and healthy to furnish a passage of sufficient size for taking in those

elements so necessary to life. It is easily seen that to be a durable animal a horse must be a good feeder. Hence the necessity of a deep, well-rounded barrel with no tucking up of the rear flank, a close coupling and a well muscled back and loin. Symmetry of form, or general conformation, merely allows an animal to do what is required with a minimum amount of exertion. We must beware of extremely long legs, narrow chest, loose ribs, long coupling, etc. Symmetry of form is beauty, and the sole standard of beauty is utility, so we can always be safe in taking this as a guide for durability.

Moderate and sensible condition is most helpful in making an animal of durability. Especially is this true in the case of drafters. Condition is merely stored up energy. So in a time of prolonged strain, if an animal has this to draw on he is much better able to endure the strain than if it were not available. Many a horse is able to "weather" a long shipment or come out of a prolonged strain or indisposition in a good condition solely because it is able to draw on this amount of stored up energy.

We could hardly close without speaking of the effect that the disposition of

a horse has on his durability. A horse of bad temper, nervous, excitable, easily frightened, cannot last as long as one per, nervous, excitable, easily frightened, etc., cannot last as long as one of a sanguine (do not confuse with lazy) temperament. It is against natural laws. A nervous, excitable, "fool" horse wears himself out, together with his master's patience, to no avail, and is completely exhausted just where the other is ready to begin. The horse of sanguine temperament is easier to educate, easier to handle, and does his work with much greater ease to himself than the one possessing the opposite characteristics.

The modern horse is in most cases, and should be in all cases, a mechanism (the result of wise selection and good breeding) so arranged as to do the most service, in the easiest way and in the best manner. By studying the laws governing the workings and functions of all these different parts, we shall soon be able to know when a part has that conformation representative of the greatest durability. In seeking this durability we have "beauty" as our guide, but utility as the first and foremost aim which underlies it.

The Street Tree Department of Cleveland

By H. C. Hyatt

In every city the trees along the street are an object of more or less civic pride. Nothing can add that touch of refinement and love of the beautiful, as do well planted and well cared for forest trees, nor can anything increase the value of the home and neighborhood as they do. A few trees costing at the most, \$5 apiece, will in a few years increase the value of the property a great deal beyond their original cost,

and when it is remembered that our very existence in this world, especially in smoke-laden cities, is directly dependent upon our trees, their real value cannot be overlooked or underestimated. In the summer they lessen the heat; in the winter they modify the cold by breaking the cold north winds; they inhale through the stroma the carbon dioxide, deadly to man but necessary for plants; and on the other hand,

give off oxygen which is indispensable for animal life; and any work which has for its object the care and increase of our trees, is a work for the health and sanitation of man and cannot be overlooked by the most skeptic.

Cleveland was among the first to establish a "Forest Department" and have earnestly striven to uphold and add prestige to the name of "The Forest City." They fought many a battle with the narrow-minded citizens who thought only of today, but they came out unscathed and are today one of the best organized departments in this country.

Laws have recently been passed by the council whose aim is to do all they can in the furtherance of this work. The most important are in short:

Ordinance No. 10,399A. This ordinance makes unlawful the hitching of horses to any tree or shrub nor shall any person permit any horse to stand near enough, to any tree or shrub, to bite or rub against it, or in any manner injure or deface the same.

Ordinance 13,474. The Board of Public Service shall supervise the improvement and repairs of all streets, alleys, etc., and shall have the right to plant, trim, preserve and remove all trees within the lines of said streets, alleys, etc., as may be necessary to preserve the trees from injurious pests or to preserve the beauty, etc. The Board under power here given may cause any tree, which is infected by any injurious scale or other pest, to be removed.

Ordinance No. 10,398. This provides that the planting, cutting, trimming or spraying, etc., shall be done only when the owner has received a permit after satisfying the Board of Public Service of his knowledge and ability so to do without imperilling the growth or endangering the life of said tree. Viola-

tion shall be a misdemeanor punishable by a fine not exceeding \$100.

The above mentioned permit consists of three parts—original, duplicate and triplicate. The original is retained in the office of the forester. The duplicate is issued to the police department and the triplicate is issued to the applicant, and upon the completion of the work is taken up by a police officer and returned to the forest's office. This last ordinance, although it may seem like a lot of red tape, is positively necessary in our cities where every owner thinks he is an expert tree doctor and not one in ten know the first principles. Further steps were taken by the Board and it was then required that the heads of the several departments (viz: water, sewer, etc.) should not permit any construction work in any of the streets until permission had been granted by the City Forester.

In such small space we can not go deeply into what the department has done, but we will state their greatest accomplishments during the past years.

In the early summer every tree along the streets was banded with some viscid material and it did excellent service in the fight against the Tussock moth during the hatching season. These trees were also sprayed with lead arsenate for the larva and in the fall the egg masses were collected.

Scale insects are on the decrease, due partially to the department's effective spraying and also to the removal of large numbers of Carolina poplars. Spraying in the dormant season has proved unpractical because of the acrid properties of the lime sulphur wash, being very destructive to painted surfaces of buildings. Kerosene emulsion applied during the hatching and breeding season has proved the most successful.

Once each year the pruning force vis-

its each street, cutting off all dead and low limbs, and painting afterwards the exposed surfaces.

The latest inovation has been the publication of free pamphlets, the most recent being upon "The Tussock Moth, with Remedies."

The following is a synopsis of what has been done by the Street Tree Department, which is entirely separate from the Park Forestry Department:

1897-08.

Number of trees planted.....	9,346
Number of trees, pruned.....	10,371
Number of trees sprayed.....	43,924
Number of trees removed.....	11,593
Number of guards placed around trees	6,100
Number of trees fertilized.....	39,446

1908.

Number of trees cleared of Tus-

sock moth egg masses..... 33,422

The department has an ideal for which it is striving and it is hoped it will not be long before it is realized. They are doing a great work and it will not be long before every street is lined with trees, well cared for, an ornament to the city and an accomplishment which every citizen can point to with civic pride. When we have the co-operation of not only the lovers of the beautiful, but even those whose business is antagonistic to the life of trees, when these unsightly objects will be placed under the streets where they belong, or such as do remain will be ornamental and conform to the surroundings, then in our co-operation we will have strength and then and then only will we reach our ideal.



“The Fire Horse”

By Leslie J. Hoyt

Probably there is no one class of horses in this world today that is of such vital importance to both life and property as is the fire horse. This is probably felt more in the larger cities, but is not to be disregarded even in the smaller cities where regular fire departments are maintained.

The advance in civilization and the bringing of the masses together into the large cities, to live and to carry on business, has necessitated the erection of the many buildings; and for the protection of both life and property many fire companies have been formed.

These fire companies are made up of a number of men supplied with several pieces of fire apparatus which they must get to the scene of the fire quickly. It is necessary to have some means of pulling these heavy wagons and for this purpose the horse is used; the peculiarities of the use of such horses and the different circumstances under which they work, has given rise to a special and distinct class of horses called the “fire horse” class.

The fact that the fire horse's place in modern civilization is of great importance is further clinched by the fact that they are always selected with the greatest care, and only two grades used, good and choice. Further, their care and training is of the best obtainable. It is a small city nowadays that does not have its hospital for the care and training of its protectors, the fire horses.

It is a matter of great interest to know just what kind of animals are used in this great business of fire fighting.

The animal must be, according to the specification of the New York and Chi-

cago departments, of good breed, rangy, a little more than average length of body, must be intelligent and learn easily, well broken, and tractable.

The animal must have a good appearance, usually of a solid color, must be sound in every particular, especially fine in the legs and feet. The head must be carried well, must be well lined, the neck running back to shoulders well muscled, but not out of proportion. The hips and shoulders must be well muscled; the horse must have a good strong back and be of fine quality.

In nearly all departments geldings are required from five to seven years of age and ranging in height from sixteen to seventeen and one-half hands. The height varies a little with the different departments. That required by New York City is sixteen and one-fourth to sixteen and three-fourth hands, while in Chicago they run as high as seventeen and one-half. The weight, also, varies with the different departments, as well as the different uses made of them. For instance, in New York they range from 1350 to 1450 pounds on the average. The heavy engine horses running over that, while the lighter horses will run a little below 1350. In Chicago we find practically the same thing, the weights for heavy engine horses being from 1500 to 1700 pounds, while for the lighter hose trucks, ladder, and chief's wagons they will range from 1100 to 1350 pounds.

The action of the fire horse is probably of as much importance, if not more, than any other requirement. The fire horse must be quick and prompt, must be able to run reasonably fast with

(Continued on page 26.)

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Editorial

Summer has gone, the autumn is here, and with it has come the opening of a new school year. To the old students who have come back, The Student extends a hearty greeting and hopes that you will show us the interest and hearty support which you have shown in the past. Upon you will rest the responsibility of maintaining the spirit of the Agricultural College. You understand that spirit, because it has become a part of you. We ask of you, then, that you instill that spirit in the heart of each and every freshman and see that they come to the proper understanding of it.

To the under classmen, The Student greets you, and we are glad to have so many of you with us. We wish to congratulate each of you on the choice you have made of a college course, and now that you are engaged in such a grand work let each one strive to make the most of the four short years which you will spend here. We say four years because it is our desire that every man in the freshman class shall remain here that long. The short course is a good one and you will be greatly benefited by it, but the four year course is better. Why? Because it affords a much broader and more thorough training. We admit there are those of you who are unable to spend so many years in college, owing to the lack of time and money. To those of this class the two year course will be a great help, and it should be a greater incentive to work hard and get all there is in it.

To all of you The Student wishes to extend a word of friendly advice. You have probably been loaded down with advice, and you may be tempted to cast it all to one side. But before you do, remember, that, although you are seemingly away from all restraining influences, you are being watched, not only by your professors and college associates, but you are being watched by your friends and loved ones at home, through whose efforts you have been given the opportunity of a college education. They are looking to you to make for yourself a mark and to prove to the world that you are worthy of their support and that a college education has been of value to you, that through it you have become stronger and broader minded men. Therefore it is up to each of you to make good, and now is the time to "get busy."

Agricultural Extension School

Under the provisions of the Alsdorf bill, passed by the last Legislature, arrangements have been made to hold extension schools throughout the state. Professor A. B. Graham, who has been in charge of the extension work since it was first established at the college, has been made superintendent of the extension schools.

The Board of Trustees have placed the direction in the hands of a committee of five, consisting of Mr. O. E. Bradfute and Mr. Julius F. Stone of the Board of Trustees, President Thompson, and Messrs. Price and Professor Graham of the faculty.

The first school was held at Amesville in Athens Co., the first week in September, with an attendance of about one hundred. The work in the schools during the first year will be done as far as possible by the present faculty of the Agricultural College and in order to carry out this plan new appointments have been made, increasing the force of the present department so as to allow the heads of the departments to spend as much time as possible in the extension schools.

The following schools have been granted and schedule arranged:

Sept. 6—Amesville. Athens Co.

Sept. 27—Latham, Pike Co.

Oct. 4—Watertown, Washington Co.

Oct. 11—Triumph, Trumbull Co.

Oct. 18—Rutland, Meigs Co.

Oct. 25—Wilingtoni, Clinton Co.

Nov. 1—Lebanon, Warren Co.

Nov. 8—Highland, Highland Co.

Nov. 15—Russell, Geauga Co.; West Milton, Miami Co.

Nov. 22—Medina, Medina Co.; Ashville, Pickaway Co.

Nov. 29—Salem, Columbiana Co.; Thornville, Perry Co.

Dec. 6—New Berlin, Stark Co.; Mechanicsburg, Champaign Co.

Dec. 13—Galion, Crawford Co.; Marysvills, Union Co.

Dec. 20—Celina, Mercer Co.; Johnstown, Licking Co.

Dec. 27—Paulding Paulding Co.; Delaware, Delaware Co.

Jan. 3—Bryan, Williams Co.; Greenville, Darke Co.

Jan. 10—Napoleon, Henry Co.

Jan. 17—Defiance, Defiance Co.

Jan. 24—Leipsic, Putnam Co.

Jan. 31—Bowling Green, Wood Co.

Feb. 7—Genoa, Ottwa Co.

Feb. 14—Hamilton, Butler Co.

Feb. 21—New Richmond, Clermont Co.

Feb. 28—Eaton, Preble Co.

Zanesville (?) Muskingum Co.

March 21—Spencerville, Allen Co.

The second school was held at Triumph, Trumbull Co., Ohio, Oct. 11, and was well attended. There were 56 men and 42 women enrolled. The men's school was held in a small church and the women were taught in private houses near the church. The courses given were in Soil Fertility, Farm Crops and Dairying. The interest manifested was very pleasing and encouraging. One woman drove twelve miles to attend the domestic science school, which was conducted by Mrs. C. W. Folk.

News Notes

New Professor of Horticulture at O. S. U.

Professor Wendall Paddock, who has been head of the Department of Horticulture and Botany at the Colorado Agricultural College for the past nine years, has taken up his work as head of the Department of Horticulture at the Ohio State University.

Professor Paddock was brought up on a farm in the fruit belt of southwest Michigan. In 1892 he graduated from the Michigan Agricultural College.

From 1893 to 1900 he was connected with the New York Experiment Station at Geneva, N. Y., with the exception of one year, 1895-1896, spent on leave at Cornell University (Ithaca, N. Y.), getting out the apple canker investigations.

In 1900, Professor Paddock was elected head of the Department of Horticulture and Botany in the Colorado Agricultural College, and the work there has shown marked advancement under his charge; also, he was the first to organize and conduct the first Agricultural Extension School in Colorado, three years ago.

The Ohio State University is fortunate in securing such a strong man for the horticultural work and it is believed that the people of Ohio will heartily co-operate with him to develop the great horticultural interests of this state.

During last September the biennial meeting of the American Pomological Society and the annual convention of the Society of Horticultural Science were held at St. Catharines, Canada. Prof. Lazenby was elected vice-president of the former, and chairman of the executive committee of the latter organization.

Mr. F. J. Ryder, who was elected assistant in Forestry, declined the offer in order to accept an advanced position in the United States Forest Service, where he has been at work for several years. It is expected that his place will be filled by Mr. J. N. Frank, who graduated from the Department of Horticulture and Forestry in 1907.

The students in the department of Forestry have taken the initial steps for a permanent organization to be known as "The Forestry Club." With about twenty enthusiastic freshmen, not to mention the upper class men, there appears to be no good reason why this club should not be a signal success.

The important office of State Forester is now held by two graduates of the Ohio State University. Prof. Frank W. Rane is State Forester of Massachusetts, and Mr. A. C. Hirst holds the same position in New Hampshire. Mr. Hirst will be remembered by some as the senior class president of the class of '97.

Professors Lazenby and Davis attended the second annual convention of the Greenhouse Vegetable Growers and Market Gardeners' Association, which was held at Ashtabula, O., Oct. 12-14, where the former read a paper on "Forcing Rhubarb in the Dark." This new organization had a remarkably successful meeting. There were representatives present from a large part of the United States and Canada. Mr. C. W. Waid, a graduate of the old department of Horticulture and Forestry, and who was for several years assistant horticulturist of the State Experiment Station, was elected president of this strong and flourishing organization.

Dr. A. E. Vinson, formerly Dr. Weber's assistant, is now bio-chemist for the Arizona Experiment Station.

E. D. Waid, '05, who has been in Maine for the past two years, has taken up extension work for the Department of Agronomy.

D. R. Vannata, G. T. E. Storey and Richard Faxton, Ohio State dairy judging team, made a creditable showing at Milwaukee recently. They placed in the general judging and won the Ayrshire Cup in Ayrshire cattle. Nebraska won first in the general judging. Iowa, who has always heretofore won something, did not get a place this year.

Mr. Williams, of the Animal Husbandry Department last year, has resigned his position and his place has been filled by Henry W. Vaughn, '08.

Mr. R. L. Shields, former assistant in the Agricultural Extension Department, has been transferred to the Animal Husbandry Department.

Mr. C. R. Titlow is now in the Agricultural Extension Dept. Mr. Titlow is a new man at the University and The Student wishes to extend to him a hearty welcome.

Mr. L. M. Montgomery, former assistant in Horticulture and Botany in the Agricultural College in Oklahoma, has been appointed assistant in Horticulture.

George Livingston, '09, has resigned his position with the German Kali Works and has accepted a position as assistant in the Agricultural Extension Department of Agronomy in the University.

E. D. Waid, '07, has taken up extension work for the Department of Agronomy.

H. E. Allen, '09, has resigned his position with the American Agriculturist and is now Instructor in Animal Husbandry in the State Agricultural College, Virginia.

C. S. Snyder, '09, is now on the Editorial Staff of the National Stockman and Farmer, Pittsburg, Pa.

W. L. Slate, '09, is teaching Agronomy in New Hampshire State College.

E. J. Hoddy, '09, has a government position in the Department of Entomology, San Francisco, Cal.

Harry Evans, '09, has a position as Assistant Entomologist in the Kansas Experiment Station.

Homesteading Has Begun on on the Alaska Coast

The homesteading of agricultural lands in Seward, Alaska, has begun in earnest this fall. New entries are coming in every day or two and it looks as if a real farming era for the Kenai peninsula and Susitna basin has arrived. So far all of the locations are on the peninsula and as convenient to Seward, the principal market, as possible. The four or five ranchmen near the town have had an exceptionally good year, having found a ready market for practically everything they could raise. It has been the best potato and turnip year since farming began in 1904 and the unwonted activity in all the mining camps of the region has greatly increased the demand. It is almost certain that there will be more mining on the peninsula and above than ever before, next year, predictions of a boom

are general and are soundly based. This seems to be acting as a stimulus to the homesteaders. The established farmers are increasing their acreage as much as possible and it is now likely that next year's crop will be double what it has ever been.

Another thing that has stirred interest in farming was the formation here of a Farmers' Institute a few weeks ago, the first in Alaska. At the first meeting of the institute, Levi Chubbuck, special agent for the Department of Agriculture, who has just completed a survey of the agricultural lands of the region, reported most favorably on the prospects in an address and greatly stirred local interest in the possibilities. Mr. Chubbuck stated that roughly he estimated the grazing and farming area of the Kenai peninsula and Susitna basin, including the Yentna, Matanuska and Chicaloon valleys, at 6000 square miles, practically none of which was occupied. He praised the climate and soil of this region highly for the growing of hay, root crops and some of the grains, qualifying his statements only by the reminder that about a great deal of this land very little was yet known except that it grew annually a heavy crop of wild hay of excellent quality.

Short Winter Course In Agriculture at Columbia

The Missouri Agricultural College has greatly enlarged and improved the work of the Short Winter Course in Agriculture which begins this year November 1st. Largely increased equipment in every department and the appointment of seven new instructors exclusively for work in the Short Winter Course has made it possible for the College to give the best instruction in the Short Winter Courses in the history of

the institution. All the fat cattle that have won prizes at St. Joseph, Sedalia, and Kansas City will be returned to the College and used for the instruction in live stock judging. The valuable dairy cattle that attracted so much attention at the Missouri State Fair will also be freely used in the Short Course instruction. The new Agricultural Building will be occupied for the first time by the Short Course students this winter. An illustrated pamphlet has been issued which describes these courses and may be had by writing to the College at Columbia, Missouri.

Enrollment, Ohio State University, to October First

College of	— 1908	'09	Gain	Loss
Arts	674	769	95	..
Agriculture and				
Dom. Science..	360	452	92	..
Engineering	915	877	..	38
Education	33	31	..	2
Law	122	174	52	..
Pharmacy	73	75	2	..
Vet. Medicine....	180	197	17	..
Total	2357	2575	218	..

"The Fire Horse"

(Continued from page 21.)

a heavy load; it must be very sure footed and light in movement, straight, clean, wide, smooth action is always commendable and being able to move off quickly and steady is a requisite for them.

They must be good in wind, having a deep chest in connection with this, and they must have great stamina and endurance because very often it is their lot to make long and fast runs under very hard circumstances.

In New York and Chicago, as well as all cities using many fire horses, the horses are bought by contract from a

reliable dealer who must furnish according to the specifications given by the department, the desired number at the desired times. Each horse is tried and trained for one month before accepted by the department, during which time the dealer is responsible for the horse in every way.

It is remarkable what some fire horses will learn under constant, careful handling and thorough training. They soon learn their duties and learn to do their duty however trying the circumstances may be; in time they become accustomed to fires and the excitement of them, and learn the sounds of the bells and gongs so that they respond almost as quickly as a human. One faithful old fire horse that I knew of, in a peculiar circumstance was driven between two burning buildings, the heat being so intense as to blister the driver's face

and singe all the hair on one side of the horse. The horse went right along as if he knew it was his duty no matter what the cost. Many other such things have gone down in the history of the faithful fire horses which show their fearlessness.

In many of the larger cities there have been introduced auto fire trucks, and it was thought a number of years ago that the fire horse would be entirely supplanted by this mode of locomotion. As far as I have been able to learn to the present date these auto trucks have been so expensive and so unreliable that they have not come into general use as yet. No doubt the time is coming when automatic locomotion of some kind will greatly decrease the use of the present "fire horse," but I predict that it will be many years coming.

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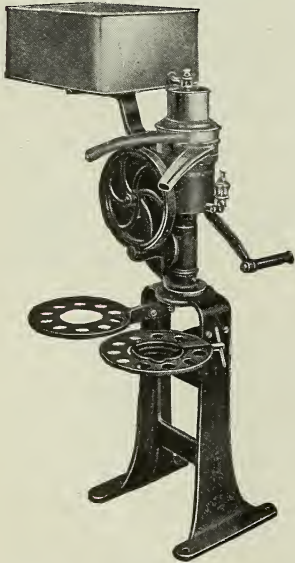
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